

Imagine a product the size of a football, placed out of the way in a boiler room. Now say this product doesn't just save one type of energy, but saves natural gas, electricity, and water, and while saving all three types of energy it improves the building's hot water system so that people don't have to wait for hot water. On top of the better service and efficient energy use, say the average building only needs *one* of these for each building, and it can be used in hotels, multifamily buildings or practically any commercial building for that matter. Finally, let's imagine this product is low cost, approximately \$2,000 to implement per building, yet has a payback period of roughly a year.

Enovative Group has been studying and quantifying the savings of such a product both independently and with the assistance of engineering staff from cutting edge institutions such as Southern California Gas of Sempra Energy. For the past, three years Enovative has hooked up sophisticated data loggers in multifamily buildings throughout the country to determine what this product could do, which is being used by such organizations as Marriot, Archstone, La Quinta Inn, and around one hundred other property management firms in Southern California Gas Company territory under a 2008 pilot rebate program called the On-Demand Efficiency program.

So what is this product and how does it save energy? The product is called the D'MAND CIRC®, and it's a recirculation pump for hot water distribution with a circuit board, called the 'brains' which is able to determine the minimum amount of time needed to deliver hot water to the end users. By using this 'smart' electronic water pumping, the entire building's piping system (which emits heat) is transformed from an energy hog, into an efficient energy (hot water) delivery system. Also while making the delivery more efficient (which saves the fuel used to heat the water), since the pump is running less, it uses less pumping electricity. For a video demonstration of how it works, go to this link www.enovativegroup.com/DMAND_CIRC.swf.

Frankly, when we first starting getting our data back, we were amazed that such a simple and small change to a system could have such a great results. Now three years later, we have data backing up savings of 47.65 therms per dwelling unit and 27.5 kWh per dwelling unit. Water savings haven't been quantified, but the reason for such recirc pumps is to deliver hot water, which the D'MAND CIRC® provides. Of the 200+ installations done under a pilot rebate program (On-Demand Efficiency), the average savings per building were 1627 therms and 1137kWh. This amounts to around a 15% savings for hot water and 95% savings for the electricity used to pump the hot water. On a dollar per unit of energy saved, this may be one of the most cost effective energy savers available, and an easy to implement saving regime.

After having showed initial data, Socal Gas setup a pilot rebate program to install 125 units in their territory. This was done in a matter of 6 months, and incentives were provided to the tune of \$200,000. This \$200k is saving 203,375 therms, and 142,125kWh annually. Over the 15-year product life span this is 3,050,625 therms and 2,131,875 kWh. The water savings are still yet to be calculated. Savings for water heating fuel may be underestimated as southern California has a milder climate than most of the United States.

Since all data is on multifamily buildings, we will project with those, but this doesn't account for the vast number of other structures that this technology is applicable to such as hotels. Using the numbers, from the pilot program, and extrapolating, results in the following: According to the 2005 US Census Bureau, there are 21 million dwelling units, in structures of 5-units or more. If all multifamily dwelling units in buildings of five units or more were to have water delivered by such a system, over the 15-year lifespan of the product the savings would be 15 **BILLION** therms and 8.6 **BILLION** kWh which would prevent 192 **BILLION** lbs of CO2 from entering the atmosphere.

Seeing how this is low cost, quick payback, easy to implement, reaching these savings are FEASIBLE.